



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,071	12/05/2003	Eric D. Henn	1034549-000003	9176

7590 09/20/2006

Buchanan Ingersoll PC
Burns, Doane, Swecker & Mathis
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER

YEE, DEBORAH

ART UNIT	PAPER NUMBER
----------	--------------

1742

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

5

Office Action Summary	Application No. 10/729,071	Applicant(s) HENN ET AL.	
	Examiner Deborah Yee	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 23, 2006 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1 to 27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. The proposed amendment, "boron-free steel" raises a new matter issue since this negative limitation is not disclosed in the specification. Note that it has been held that the express exclusion of certain elements not discussed in the original specification together with the implicit inclusion of all other elements not originally disclosed in the original specification constitutes new matter.

Art Unit: 1742

5. In newly submitted claim 27, the step comprising "machining the mold cavity in the mold bases" clearly raises a new matter issue since no clear descriptive support exists for this limitation in the original disclosure. Note paragraph 43 of applicant's specification discloses machining sprues and runners into the manifold but there is no disclosure to machine mold cavity.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1 to 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claims are incomplete because they recite a steel composition without a balance. It is recommended to incorporate ---and the balance being iron ----.

9. Claim 22 recites ... "hardness higher than that desired for the mold tooling and the tempering lowers the hardness to the desired hardness for the mold tooling..." which is vague and indefinite since the desired hardness is uncertain and not clearly defined.

Claim Objections

10. Claims 23 and 24 are objected to because of the following informalities: Process steps need to be actively recited, e.g. cooling, reheating, forming. Appropriate correction is required.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1 to 18 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 2003-3234.

13. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 2003-3234 as applied to claims 1 to 18 and 26 above, and further in view of Beguinot et al (US Patent 5,645,794).

14. The English abstract of JP'234 discloses a steel alloy having a composition with constituents whose wt% ranges overlap those recited by the claims; such overlap in wt% ranges establishes a prima facie case of obviousness because it would be obvious to one of ordinary skill in the art to select the claimed wt% ranges since the prior art teaches the same utility (steel for plastic molding die). See MPEP 2144.05.

15. Moreover, JP'234 discloses steel examples in table 3 on page 8 having hardness values ranging from 29 to 31 HRC which would be within applicant's claimed hardness range of 277 to 311 BHN (equivalent to about 28.5-33HRC).

16. Although JP'234 steel is processed in a slightly different manner than claimed by present invention, such would not be a patentable difference. Note that in a product-by-process claim, determination of patentability is based on the product per se and not its process limitations. Applicant will have the burden to show that the prior art product

Art Unit: 1742

does not necessarily or inherently possess the characteristics of the claimed product.

See MPEP 706.03e

17. Also since JP'234 discloses using steel for making plastic molding die, then it would be obvious to use steel as components for die, such as the mold base which forms the cavity as recited by claim 26. Moreover, machining cavity to provide smooth surface is a conventional practice as evident by Beguinot'794 (see lines 61 to 67 in column 4); and hence would be obvious to incorporate.

18. Claims 1 to 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beguinot et al (US Patent 5,645,794) or Beguinot et al (US Patent 5,855,846) alone or in view of Henn et al (US Patent 6,045,633).

19. Beguinot '794 on lines 24 to 68 in column 2 and Beguinot'846 on lines 60-67 in column 2 and lines 1 to 50 in column 3, each teach a steel having a composition with alloying constituents whose wt% ranges overlap or closely approximate those recited by claims; such similarities renders applicant's composition *prima facie* obvious because it would have been obvious to one of ordinary skill in the art to select the claimed alloy ranges from the broader disclosure of the prior art because the prior art has the same utility (tool steel used for the manufacture of molds for plastics) and same hardness values within the range of HB 277 to 311. See MPEP 2144.05.

20. Even though Beguinot'794 alloy contains 1 to 2.5% Mn whereas present invention alloy contains 0.6 to 0.9%, such would not be a patentable distinction since applicant has not demonstrated (e.g. by comparative test data) that the claimed Mn range is somehow critical and productive of new and unexpected results. It is the

Art Unit: 1742

examiner's position that without comparative test data to establish criticality, then it would seem that a composition with 0.9%Mn vs. a composition with slightly more (say 1%) Mn would depict a mere difference in the proportion of element without any attendant unexpected results; hence claims would not patentably distinguish over prior art.

21. Moreover, Beguinot'794 alloy contains 0.002 to 0.005% B and Beguinot'846 alloy contains 0.002 to 0.015%B to increase hardenability and quenchability whereas the present invention alloy is boron-free. It is the examiner's position that to omit an alloying element, B, with the consequent loss of its known function, as applicant has done, would not be a patentable distinction, see *In re Wilson et al.*, 153USPQ740.

Moreover, the differences would amount to no more than routine optimization of alloying constituents to achieve the desired balancing of properties which is well within the skill of the artisan and productive of no new and unexpected results.

22. In regard to hardness property, Beguinot'794 in claim 11 discloses a mold having hardness between 270HB and 350HB and Beguinot'846 in Table 2 of column 9 discloses steel examples having hardness values ranging from 295 to 331BHN, which overlap the 277 to 311 BHN hardness value recited by one or more the claims.

23. Moreover, Beguinot discloses alloying constituents with wt% ranges that overlap those recited by the dependent claims.

24. Beguinot, also, teaches a tool steel processed in substantially the same manner as recited by process claims. Note Beguinot'846 on lines 35 to 42 of column 7 teaches steel slab is subjected to rolling or forging, air quenching and then subjected to

Art Unit: 1742

annealing (equivalent to tempering) at 500C to <Ac1. Furthermore, Beguinot'794 on lines 37 to 67 in column 4 teaches smelting, preoxidizing to remove impurities, rolling or forging, air quenching and tempering at greater than 500C. Even though prior art does not teach melting material in an electric furnace, vacuum degassing to avoid impurities and providing an argon shield during pouring as recited by claims 19 and 20, such would not be a patentable differences since these steps are well known and conventional in the metallurgical art and are commonly utilized in the making of steel and hence would be obvious for the artisan to incorporate.

25. Moreover, hot leveling and cooling on a rigid cooling table is not taught by Beguinot process but would be obvious to incorporate since such steps are conventionally used to promote steel plate flatness and avoid sagging and wrinkling when manufacturing mold base for plastic injection molds, as evident by Henn'633 on lines 3 to 28 in column 7.

26. In regard to claims 26 and 27, Beguinot'794 in columns 61 to 68 in column 4 teaches forming plastic mold tooling components, particularly a mold cavity subjected to machining.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-27211253. The examiner can normally be reached on monday-friday 6:00am-2:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Deborah Yee
Primary Examiner
Art Unit 1742

dy